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QLScene

Surrey Quanta

Quanta are holding a Surrey Workshop in Byfleet Village Hall, High Road, Byfleet on May 14th 1994. Contact Ken Bain on 0923 347432 for more details. It has been pointed out that this date clashes with the IQLR Show in Newport, Rhode Island, USA on the same day. The complications of an international show timetable!

Di-Ren Plan Whole Interface Range

Di-Ren have altered their projected DPR020 Sound Analyser. Instead of an add-on, it is to be incorporated into **System Amadeus**, a new I/O comprising one controller device into which all other devices are plugged. "Unfortunately," says Robin Barker, "We could not achieve an acceptable level of sound quality at normal QL RS232 serial port baud rates. We considered fitting on-board memory, but this would add significantly to the cost."

Di-Ren's advance information on the Amadeus data transmission system - expected in April 1994 - describes a device which will connect any number of I/O interface cards (such as Centronics printer ports) to the computer, connect terminals with like or unlike terminasl, and connect terminals with interface cards.

Three types of **controller** are at the heart of Amadeus: **Centronics** controller, **RS232** configures a DTE, capable of communicating at up to 115000 baud, and **QL rom port** controller. The controllers are accompanied by the appropriate software, currently for QLs and PCs. The Controllers, Centronics interface and Sound interface are likely to be the first releases, and Di-Ren would like to hear from the public what else is in demand. Network driver software is also on the "coming soon" list.

A sound interface and a data buffer intoface are also on the list, as is a power adaptor which can be plugged in-line to accept a power range of 7-20 volts AC or DC, and a power enhancer for long cable runs.

Tentative prices show the Controllers and I/O Interfaces in the £27-£39 price range. Other prices are still TBA. The system is still under development and advancing by the minute. For the most up to date leaflets or other queries, contact **Di-Ren at 59 William St., Walsall, West Midlands WS4 2AX. Tel. 0922 33580, or Dilwyn Jones**, who will be the distributors.

Meanwhile, Di-Ren's **QL-PC Fileserver** will shortly be upgraded to SE standard, with optional link port facilities and improved coding. This will be obtainable as an upgrade package for current users.

A new program, **QL-PS Superlink**, will allow communications and complete control of a QL via a PC, using the Amadeus system under many circumstances. This program will be "complex and a little time coming", say Di-Ren.

MERZ UPDATES

Jochen Merz's **QVME** QL emulator (now for Atari Mega STE and Atari TT) now costs only DM 549. It supports all three serial ports on the Mega STE, with split baud rates and buffering on all three. All support rates up to 19200 baud, and the third one also supports 38400 and 57600 baud. The emulator's boot software now boots directly from every hard disk. The current verions is Level E41, and the manual is Revision 8.1.

QD version 6 has added the important feature of automatic tabulation character compression and decompression. You can choose which files can be tab compressed. This means that the file can be accurately reproduced when re-loaded, but can save between 25 and 40% of file space on saving (assembler sources). **Compression** is a little slower (about 10%) than before, but loading time is faster. Assembly time is also saved as the assembler only has to skip tabs, not multiple spaces. Check whether your assembler will accept tabs before compression (GST Macro Assembler, for instance, will not).

QD now also has row and column display without slowing character entry down, even on slow systems. It will also check bracket match, in both directions, on all sorts of brackets and string definters << and >>. There are other improvements as well.

For those ligher moments, Merz has another game - **DoubleBlock**, a Tetris-like game with good graphics, several difficulty levels and a rare player-vs-player option.

For information and news, call Jochen's **Qdos Box Duisberg on Germany 0203 591706**, 24 hours, no user charge. The box supports currently up to 16800 baud for high speed modems to save on phone bills for overseas callers. As well as product news and version numbers, the box has PD software on it, including demo versions of Jochen's and other software, free to download.

Qdos Box **File areas** include: Mailbox utilities, Assembler, SuperBasic, C and Pascal, Text87, General Utilities, Other Software (such as Qdos Xchange), Demos, General Documents, Pictures (GIF and UNGIF file viewer) and others. Menus are in English and German.

Jochen Merz Software, tel. 0203 501274, mailbox 0203 591706.

Page Designer 3 and File Master

Dilwyn Jones has been shelling out press releases at a furious rate this month. **Page Designer 3** version 1.09 is now out incorporating suggestions from the first crop of PD3 users. There is now up to x5 zoom available while editing, page colour inversion, an Overstrike option for multiple-pass printing, and a considerable number of bug-fixes.

Current users who want the upgrade should return their master disk to DJC with return postage for a free upgrade to the current version. PD3 normally costs £40, or £25 to upgraders from PD2 with proof of purchase.

Dilwyn is requesting that anyone who may have sent for information, or an uncashed order, well in advance of release and has not heard from DJC, please to contact him so that they can set the records straight.

Also now in upgrade is Joe Haftke's **Filemaster**, now catering for the big increases in QL memory expansion and disk storage capacity.

Filemaster can now manipulate selections up to 288 files (subject to free memory). Meanwhile, Directory functions from DIR MENU have no restrictions on the number of files and are only limited by free memory. Provided suitable memory is available, Filemaster_Plus will run with Trump Card QLs as well as Gold Card.

The **Filemaster User Guide** has been updated to the new system. Filemaster costs £12, or for existing users to upgrade, £2 (UK) or £3 (overseas) with return of the master disk.

Contact **Dilwyn Jones Computing, 41 Bro Emrys, Tal-Y-Bont, Bangor, Gwynedd, LL57 3YT. Tel. 0248 354023.**

Quanta 10th Anniversary Show

Quanta are publicising their **10th Anniversary AGM and Workshop** with more verve than usual and clearly hope for a record turnout of and visitors.

The Meeting is to take place at the Park Hotel, Tynemouth, on Saturday and Sunday 23-24th April 1994. Tynemouth is a seafront town a few miles east of **Newcastle Upon Tyne** and near to road, rail and air via Newcastle Airport. The Stevenson Railway Museum nearby is another attraction.

On the QL front, the meeting is expecting demonstrations of the new **Super Gold Card** from Miracle Systems, and Ron Dunnett's new Fastnet and 16-bit IDE interface for the QL. The main Workshop, and the Anniversary dinner open to members and guests on a first-come first-served basis, are on the 23rd, and the AGM on the 24th.

The Park Hotel, Grand Parade, Tynemouth can be contacted on 091 257 1406 (overseas +44 91 257 1406) or fax 091 257 1716. There are 400 parking spaces. Information from the local organisers should be directed to **Derek Stewart, 20 Emily St., Gateshead, Tyne & Wear, NE8 3QH.**

Miracle in Newport

IQLR's **Miracle In Newport show**, which held its first meeting last year sponsored by Miracle Systems, will take place as planned on Saturday 14th May in Newport, Rhode Island, USA (near New York).

This year the show will be held at the **Meeting Room, Howard Johnson Lodge, 351 West Main Road, Middletown, RI 02849, USA** from 10am to 6pm. (The Salvation Army Hall is not available this year.)

The show however is just the centrepiece of an extended weekend of meeting and socialising between US QLers and their visitors. Following last year's revels, this year will again see a Dutch Treat Dinner (the US version of a friends' night out where everyone pays their own dinner bill, well known to regular attendees of European QL shows) on the Saturday, a Brunch of coffee and doughnuts at Motel 6 from 9am on Sunday morning, and plenty of other opportunities to socialise for those who arrive early and stay late.

Visiting UK suppliers will be staying at **Motel 6, 249 Connel Highway, Newport**. A single room costs US\$38.07 per day at the motel, and international reservations can be contacted on +1 505 892 8667. But, reports IQLR, there are plenty of other motels and hotels in the area for anyone who turns up unexpectedly.

From Europe, the show is expecting to see Stuart Honeyball of Miracle, Bill Richardson of W N Richardson, Dilwyn Jones of DJC and his wife Janet, and Ron Dunnett of Qubbesoft, plus many representatives of US suppliers and newsletters.

Contact **Bob Dyl** on +1 401 849 3805 for more information.



Memory Watch

WatchMem_obj is a utility job allowing assembler and C programmers to monitor an area of memory and to give the alarm and a message when that memory is altered. Written by Ian Bruntlett, find it at **Quanta, Qubbesoft P/D and Jochen Merz's Qdos mailbox.**

OPEN CHANNEL

QED Search

Risking accusations of looking a gift-horse in the mouth, could I plead with Mr. Bredenbeek, when he next looks at his excellent editor **QED**, in the C68 PD, to amend the search facility 'F', so that the search string is not cleared until the leaving of the editor, or until a new string is entered as in Metacomco's ED?

I would apologise to you all for the scrawl, but it's really all your fault. Every time I think of buying a **printer**, Troubleshooter publishes another printer article that puts the fear of God into me.

G F Fisher
Bristol

Come now! No computer system is complete without a printer. Let's have some letters of recommendation, please, for recently-purchased, well-behaved, reasonably-priced QL-compatible printers from any dealers who offer a helpful level of support for a new user. They are a pain at times, but where would we be without them? Knee-deep in discarded bios.

Index Unbound

Now that Mike Lloyd has finished his **Keyword Index**, I feel he should be congratulated on the work he has put into the project. With hindsight, the index provides a very valuable contribution to QL reference sources, bringing together and documenting, as it does, all the major keywords which have been produced from the beginning.

Being distributed over 30 or so QL Worlds, however, detracts from its usefulness, since it is fairly difficult to slog through back issues to home into a particular keyword. Might I suggest that you consider reprinting this index as a stand-alone publication so that it can stand on the bookshelves in its own right?

Reprinting the index in this way would allow correction of the editing errors that have crept in. I make this comment in the nicest possible way - I am sure you would appreciate what I mean!

Peter Tyler
Ormskirk
Lancs.

This is something we shall have to talk to Mike about. There are corrections we could make, but it would be quite a big project to update and publish the whole thing, as we have no existing page files where we can slot correc-

tions in.

Of course, the centre-page layouts and "holes" down the middle mean that you can extract and re-bind your New User Guide as a separate unit without tearing your QL World backissues - the whole series was designed as a pull-out, after all! They should also be in alphabetical order, but we have to admit that something went slightly adrift around part 19.

QPAC Puzzle

This letter is prompted by the letter from my namesake, Roy Wood in QL World III.1 ("Wrong Definition") and his 20th rewrite of his **QPac2** boot program. After a few attempts using the manual - largely unintelligible - and after following through the

check a Menu Command results in my system locking up. I asked a member of the DP team about this at the Blackrod workshop, and while he had not heard of the problem, he did advise that one could use F1 and the Help screens instead of the Menu display. This is an alternative, but it is not as convenient or explicit as the F2 path. I wonder if any of your readers have had the same thing happen in **QPac2**, and if they have found a solution.

Ernest Wood
Southport
Lancs.

How To Ramdisk

Arthur Nunn wrote in Open Channel in QL World III.1 that he knew little

Open Channel is where you have the opportunity to voice your opinions in Sinclair QL World. Whether you want to ask for help with a technical problem, provide somebody with an answer, or just sound off about something which bothers you, write to: Open Channel, QL World, The Blue Barn, Tew Lane, Wootton, Woodstock OX7 1HA.

QPacer prog and various articles, I produced a workable boot program.

My wish, after installing **Miracle's Gold Card**, was for a word-processor, **Archive**, **Abacus**, and **QL_Genealogist** operating together. My relief at achieving this has been dimmed slightly because my wordprocessor and **QPac2** do not live together as completely as do either the **Psion Suite** or **QL_Genealogist**, although I can use program switching with **Taskmaster**.

The problem with **QPac2** is that under certain conditions, such as after using one of the **Psion suite**, trying to use F2 from **Perfection** to

about ramdisks. As a trader, I have found this surprisingly common, even though there is information about them in all of the modern disk interface manuals. To avoid lengthy phone calls trying to explain things like this, I produced some information sheets for customers some time ago. There are three in all, one on ramdisks, one on the **Pointer Environment**, and one on **printer** problems (Aaargh! I'm sure you know all about those!). You can use them in the magazine if you require to, though bear in mind that bits have appeared in other QL publications.

Alternatively, these are available to customers and readers free from **DJC**

with orders on request and with catalogues. Otherwise, please send return postage. We can also supply a ramdisk on disk or cartridge for £2 (UK) or £3 (overseas).

Dilwyn Jones
DJC
Bangor

More Modems

Would it be possible for there to be in the not too distant future an article covering the topic of **modems and electronic communications** in relation to the QL? Like many readers I own a Tandata QL modem but now find that its slow speeds preclude access to many networks (not least my University's mainframe). The problem created by this situation is (a) what should I replace the Qmod with (b) how does one physically connect a non-QL designed modem to the QL (c) what software can/should be used (d) what are some of the bulletin boards available, UK and internationally? In brief, what is the current and likely situation vis-a-vis the QL in this important field

Best wishes for the New Year.

Dr. Neil Daglish
Porirua
New Zealand

We did an article on Bulletin Boards in II.8 (often, incorrectly, known as II.7, as opposed to II.7, which is also, quite correctly, known as II.7). We have been talking about modems recently and will talk further.

NOT FOUND

Hopefully this may help some readers: for some time I have been losing disk data and programs with the dreaded NOT FOUND error message.

Sometimes on one or other of the drives, sometimes on both with no obvious pattern. I then remembered a QL article a long time ago which commented that sometimes the QL processes information faster than peripherals can deal with it. I now place a PAUSE 200 after the "delete drive 1" instruction, another after saving and a third after deleting drive 2. Bingo! No more error messages.

Don Smith
Kirkbymoorside
Yorks.

Thanks, Don.

Poke Puzzle

I would like to thank Bruno Coativy for the letter in Open Channel Vol II.12 (Poke modification). Unfortunately his last suggestion of how to poke in the protected area of the Gold Card is wrong. I tried also a simple machine code program to modify original Font 2 without any positive effect. My conclusion is that the protection of the rom area of the Gold Card is very sophisticated, and without precise knowledge of this matter any of the experiments are hopeless.

It would be very nice if I can get the address of Mr. Coativy for direct contact.

Keep up the good work on QL World and thanks for this magazine. Only the delays in issuing are not so pleasant.

Dr. Vladislav Teply
Cilova 89
162 00 Prague 6
Czech Republic

The words "no kidding" spring to mind. Just when I thought that the only things that could hold us up last month were under my control, a monitor broke down and then there was a snowstorm and somebody's advert

went round the long way. Perhaps if I stop worrying, we'll be early!

I will forward your letter to Bruno. You could collaborate and perhaps approach Miracle too.

Locals/Parameters

In **SuperBasic In Action**, Vol II.7, Simon Goodwin comments about the "nine locals/parameters" problem. In fact, it may be a dramatic problem if you really need more than nine parameters into a recursive procedure or function. But the problem occurs only if you declare too many locals/parameters in the SAME procedure. So, if your procedure **BIG_WORK** needs, say, 15 locals (var1,...,var15), it's possible to survive by writing something like:

```
100 DEFine PROCedure  
BIG_WORK  
110 LOCAL var1 ... var9  
120 BIG_WORK_a
```

```
130 END DEFine  
BIG_WORK  
140 DEFine PROCedure  
BIG_WORK  
150 LOCAL var10 ... var15  
160 and here is your  
170 code  
180 END DEFine  
BIG_WORK_a
```

Of course, if you need more than 18 locals you will use **BIG_WORK_b**, **BIG_WORK_c**, etc. I can't confirm that this method always works with every QL's configuration, but as far as I am concerned I never had had any trouble with it.

Long life to the QL and Sinclair QL World!

J Piette
Leige
Belgium

Simon says: "This works with locals, on all Qdos systems, but still limits the user to nine parameters as opposed to locals unless Minerva or compiled Basic is used."

Editor's Notebook

The accent this month is on file handling. **SuperBasic In Action** is the first part of Simon's development of **Browser**, a simple file requester. A short **SuperBasic** program by Neil Gordon (one of our most patient programmers!) helps with making backup disks. The **New User Guide** looks at the memory structure of Qdos Hilary Snaden, on the other hand, gives us one way of taking over the PC World.

Talking of "other" computers - how about a network which won't net, a computer which declines to load your applications, loses your files, refuses to respond to your investigations, and won't print because it's out of memory? You don't need a QL - no names, but you can pay eight times as much for all this!

The Royal National Institute for the Blind say that they have plenty of volunteers to help their members with computing now, thanks to everyone.

SuperBasic In Action

Simon N Goodwin goes browsing with his new SuperBasic project.

This project is a logical application for the SuperBasic file requester developed last year. The Browser is a friendly, simple 'shell' for Qdos, allowing file manipulation, viewing and copying, without the need for SuperBasic commands.

The Browser lets you select files by pointing at their names on the screen. You can manipulate individual files as you go along, or mark a group - perhaps including sub-directories - for automatic processing. It works like DW and SID on the Amiga, or XTree and File Manager for PCs. It has two directory windows so you can see things move around as you work, it's easily extended and configurable for all sorts of display.

Getting Started

What do you do first, when you get a new disk? Read the manual? Perish the thought. `LRUN BOOT`? Not if you expect a safe return to your familiar system thereafter. If you're anything like the QL owners I know, you whack it in `FLP1_` and type `DIR`, or `WSTAT`, to find out what's there.

The next step depends on your style, but you'll probably look at a few files with COPY FILE,SCR (or MORE, if you have it) and maybe hop into an editor, using DIR again every so often for inspiration. Once boredom or paranoia set in, you may even make a backup with WCOPY or a utility like TCOPY. This is all good typing practice, but there must be an easier way...

This SuperBasic utility makes browsing through files much less tortuous. Commands are single letters and can apply to several files at once. You can issue them before you pick a file,

```

C:\DOS_BAS
CONVMS_LOAD_1-6
CHECK_CIA_1-6
CLIP_LOAD
    1-6
CONFARE_DISK_TASK
CFM_READER_CAR
CFM_READER_NOTE
CFM_READER_TASK
CUBE_BAS
CUBE_TASK
ctrl_pos
chanscan_bas
chaos_bas
choon_bas
craeger_40k
convert_poscelled_bas
convrt_qtbasoc_bas
copy_speed_bas
covet_bootblock_bas

```

```

<- DRIVES
ABUT_SCREEN_BAS
AIRLANDSEA_TALL
AirLandSea2_BOTTOM
AirLandSea2_SCR
AirLandSea2_TOP
BIGGOLD_SPEEDSCREEN
Birds2_SCR
Birds32_SCR
BOOT
birds2_NOTES4
birds&fish2_MODE4
CENTRE_SCREEN_BAS
CIRCLELIMIT
CIRCLELIMIT Tall
circlelimit2_PART1
circlelimit2_part2
FISHBALLS
FISHBALLS_MODE4_BOTTOM
FISHBALLS_MODE4_TOP

```

```

flp1_
Qdos Browser © SNG 1994 ALL COPY DELETE EDIT GRAPHICS INFO
MOVE PRINT QUIT RENAME SWAP TEXT WILDCARD

```

```

<- PARENT
tax_Sum9192_doc
tax_Sum9293_doc
tax_sift_bas
tax_TAX91
tax_TAX91_bas
tax_tax92
tax_tax92_bas

<- DRIVES
24MHz_text
ABOUT_SCREEN_BAS
ADD_CR_BAS
ALIAS_CODE
allfigs_grf
alter_code
analogue2_bas
anders_bas
Browser_doc

flp1_tax_
dos Browser © SNC 1994  ALL  COPY  DELETE
EDIT  GRAPHICS  INFO  MOVE  PRINT
QUIT  RENAME  SWAP  TEXT  WILDCARD

```

```

5000 REMark Qdos WINDOZE - SuperBASIC in Action April 1994
5010 REMark Uses FILE REQUESTER routines introduced last year
5020 REMark Copyright 1993,1994 Simon N Goodwin, version 0.4
5030 :
5040 DEFine PROCedure WINDOZE(n)
5050 LOCAL i,t,com_code%
5060 REMark Windows are numbered from 0 to n-1
5070 READ_COMMANDS : com_code%=0
5080 DIM d1$(max_files%,name_limit%),d2$(max_files%,name_limit%)
5090 DIM f1$(max_files%),f2$(max_files%)
5100 REMark D2, F2 etc. for more windows (or use Minerva slices)
5110 DIM path1$(name_limit%),path2$(name_limit%)
5120 DIM x$(50),y$(50),wild$(name_limit%),dest$(50)
5130 DIM id%(n-1,1),place%(n-1,2)
5140 path1$="flp1_tax_" : path2$="flp2_"
5150 REMark MODE 8: NEW_VIEW #0,40,path1$,0,10,d1$,f1%
5160 NEW_VIEW #0,24,path1$,0,20,d1$,f1%
5170 id%(0,0)=menu% : id%(0,1)=scroll_bar%
5180 SAVE_WINDOW_SPEC 0
5190 REMark MODE 8: NEW_VIEW #0,40,path2$,108,10,d2$,f2%
5200 NEW_VIEW #0,272,path2$,0,20,d2$,f2%
5210 id%(1,0)=menu% : id%(1,1)=scroll_bar%
5220 SAVE_WINDOW_SPEC 1
5230 REMark COMMANDS 0 :REMark No highlight yet
5240 t=0 : REpeat polly
5250 LOOK_AT t
5260 IF kb<>10 : t=1-t
5270 END REPEAT polly
5280 END DEFine WINDOZE
5290 :
5300 DEFine PROCedure LOOK_AT(k)
5310 REMark Focus on file-selector k; MODE sensitive
5320 menu%=id%(k,0) : scroll_bar%=id%(k,1)
5330 free%=place%(k,2) : Line%=place%(k,1) : here%=place%(k,0)
5340 SELECT ON k
5350 =0 : AT #0,0,0
5360 PRINT #0;PADDED$(path1$,name_limit%)
5370 SELECTOR #0,path1$,20,d1$,f1%
5380 =1 : AT #0,0,name_limit%+5
5390 PRINT #0;PADDED$(path2$,name_limit%)
5400 SELECTOR #0,path2$,20,d2$,f2%
5410 END SELECT
5420 SAVE_WINDOW_SPEC k
5430 END DEFine GIMME
5440 :
5450 DEFine PROCedure SAVE_WINDOW_SPEC(n)
5460 REMark id%(n,0)=menu% : id%(n,1)=scroll_bar%
5470 place%(n,0)=here% : place%(n,1)=Line%
5480 place%(n,2)=free%
5490 END DEFine SAVE_WINDOW_SPEC
5500 :
5510 DEFine Function PADDED$(text$,length%)
5520 RETURN text$ & FILL$(CHR$(32),length%-LEN(text$))
5530 END DEFine PADDED$
5540 :
5550 DEFine Function PREFIX$(text$)
5560 LOCAL i
5570 i="_" INSTR text$
5580 IF i=0 : RETURN "" :REMark Shouldn't happen?
5590 RETURN text$(1 TO i)
5600 END DEFine PREFIX$
5610 :
5620 DEFine PROCedure READ_COMMANDS
5630 REMark Initialise COM$(COM_COUNT%)

```

or after selecting a group. The same command applies to subsequent selections, until you change it, so you can rename a batch of files by just over-typing their names (thanks, Howard!). There's never any need to copy-type file names - just move the cursor to them. You can navigate quickly between directories and drives, and across the network. The Browser understands Thor and QJump Level 2 sub-directories, and can move or copy whole branches of the directory tree at one command.

File Requesters

The Browser uses two file requesters, a source and destination, to make it easy to copy, compare or move files. You spend most of your time in one or other of these requesters, and can swap between them with Esc or the horizontal arrow keys.

The menu at the bottom of the screen shows the commands, selected by their initial letter: C for Copy, T

for Type (text) and so on. These commands correspond to SuperBasic sub-routines. Add the name, and a matching subroutine, and you've taught Qdos Browser a new trick. Command routines for 'Type', 'Info' and 'Wildcard' appear this month, with more to follow, including file shufflers and a general-purpose viewer for all types of QL graphics file.

Every Qdos enthusiast has individual requirements, so it is valuable to be able to extend the menu to include further operations, such as calls to external programs like editors and archival utilities. This is practical for utilities that accept file parameters via EXEC, like EDT and the GST Assembler, and commands that work on a named file. The 'Type' command uses MORE to display text files.

Display modes

The Browser can be configured to run in any QL display MODE or character size, including double-height and double-width text. The example screens show it running in a range of CSIZES.

The two file requesters fit side-by-side on the screen if narrow CSIZE 0,x characters are used, or one above another for Mode8 or wider characters. The default window positions leave 24 pixels free at the left edge of the screen, so they should be readable on most TV screens as well as monitors.

This month's listing is an extension for the file requester routines introduced in issues 8 and 9 of QL World last year, and should be merged with that program. Next issue I shall reveal the remainder of the Browser's own code, and its interface to the requester routines.

I have split the original REQUEST\$ function in two, to make it easy to use two windows at once. NEW_VIEW opens the file-name and scroll-bar windows, then reads and displays the directory. SELECTOR allows file operations to be performed once such a view has been prepared.

All the new routines start with WINDOZE (well, it seemed a good idea at the time) which opens the specified number of views. Lines 5160 and 5200 open windows suitable for small Mode4 characters. If you want bigger text, comment out these lines with REMark and replace them with the alternative ones, on the previous lines, removing the "REMark MODE 8:" prefix.

The second parameter is the space to leave clear at the left edge of the screen, and the fourth is the top margin, also in pixel units, followed by the number of lines of text. The examples use the same size for each window, but you can have one tall one and one squat one if you prefer.

PROCedure LOOK_AT (a.k.a. GIMME) puts the path names under each columnar view. After the AT commands at the start of each SELEct case if you are using two windows in one column. If so, you may like to print the path text in window #1 rather than #0, so it still appears under each view. SELECTOR has only five parameters; it does not need the pixel margins as its windows are ready-made by NEW_VIEW.

The programming has been complicated by the need to ensure that the Browser runs reliably on an any QL interpreter or compiler. It would have been shorter, and simpler, to write a version specifically for Minerva SuperBasic, but that would rule out many users.

Each requester uses more private variables than Sinclair's interpreter can pass safely to a SuperBasic procedure, so some are stored and restored in arrays between one call and the next. There are other possible ways of doing the job, but I chose this approach to minimise surgery in the body of the file requester.

ID% is a square array of four integers, holding the two channel numbers for each view. Increase the first subscript if you want more than two views at a time. PLACE% stores three variables used in each view: LINE%, the current display line, HERE%, the position in the directory arrays, and FREE%, the index of the first unused array element. SAVE_WINDOW_SPEC stores these values; LOOK_AT sets the global variables from the corresponding array slice.

Two utility functions follow. PADDED\$ takes a string and a length and returns the string, packed out with spaces to the length specified. PREFIX takes a string and returns the part up to the first underscore. This is needed because of the way QJump directory entries contain the entire path, less the device name. PREFIX\$ gets the drive name from the directory path, to make a complete path for COPY, RENAME and so on.

```

5640 RESTORE b700
5650 READ com_count%
5660 DIM com$(com_count%,16)
5670 FOR i=1 TO com_count%
5680   READ com$(i)
5690 END FOR i
5700 DATA 13,"ALL","COPY","DELETE","EDIT","GRAPHICS"
5710 DATA "INFO","MOVE","PRINT","QUIT","RENAME"
5720 DATA "SWAP","TEXT","WILDCARD"
5730 END DEFine READ_COMMANDS
5740 :
5750 DEFine PROCedure COMMANDS(this1%)
5760 PAPER #0,0 : CLS #0 : INK #0,7
5770 PRINT #0;PADDED$(path1$,name_Limit%)
5780 AT #0,0,name_Limit%+5 : PRINT #0;PADDED$(path2$,name_Limit%)
5790 PAPER #0,0,2,0 : PRINT #0;"Qdos Browser " SNG 1994"!
5800 PAPER #0,0
5810 FOR i=1 TO com_count%
5820   PRINT #0!!! : INVERSE #0
5830   IF this1%=i THEN PAPER #0,4
5840   PRINT #0!!CHR$(32) & com$(i) & CHR$(32)!
5850   IF this1%=i THEN PAPER #0,7
5860   INVERSE #0
5870 END FOR i
5880 PAPER #0,0
5890 BLOCK #0,480,1,0,19,0
5900 BLOCK #0,480,1,0,29,0
5910 BLOCK #0,480,1,0,39,0
5920 END DEFine COMMANDS
5930 :
5940 DEFine PROCedure DO_COMMAND
5950 LOCAL k$(1),j
5960 k$=CHR$(k)
5970 REMark Now try to match K$ with a command
5980 FOR i=1 TO com_count%
5990   IF com$(i,1)=k$ : com_code%=i
6000 END FOR i
6010 IF com_code%<>0
6020   COMMANDS com_code%
6030   IF picking : DO_BATCH
6040   COMMANDS com_code% :REMark Update menu
6050 END IF
6060 END DEFine DO_COMMAND
6070 :

7990 REMark "TEXT" action routine
8000 SAVE_SCREEN
8010 INK #0,4
8020 PRINT #0;"DIY Toolkit MORE file viewer - use keys"
8030 PRINT #0;"! to move, +ALT for pages, ESC to Exit"
8040 INK #0,7
8050 MORE drive$ & file$ : RESTORE_SCREEN : CURSEN #0 : RETURN
8060 :
8090 REMark WILDCARD cumulative selection
8100 CLS #0
8110 INPUT #0;"Enter wildcard pattern to match:"!wild$\\
8120 IF LEN(wild$)>0
8130   FOR i=1 TO free%-1
8140     IF wild$ INSTR dir$(i)
8150       flag%(i)=flag%(i) || pick_mask%
8160       PRINT #0;dir$(i)
8170     END IF
8180   END FOR i
8190 ELSE

```

Command Names

The command names are stored in alphabetical order in DATA statements. The initialisation routine READ_COMMANDS copies them into COM\$, a string array, to save time later. The first DATA value is the number of commands, followed by their names. They should all start with a different character, as that's how they will be selected from the keyboard, but apart from that the text is up to you.

PROCedure COMMANDS displays the commands in window #0, using INVERSE from DIY Toolkit and some BLOCK commands to set them apart. The most recently selected command THIS1% appears in a contrasting colour. The PRINT exclamation mark separator is liberally used to keep commands from spilling across the ends of lines, but you may need to alter the size of window #0 if you add commands or use big characters.

DO_COMMAND is called from within the file requester. It attempts to match the key-code, K, with the first characters from the command array. If speed is vital you could use INSTR to search a specially-made string holding all the first characters, but in practice this loop seems fast enough; it only runs when the user deigns to press a key. Command codes in COM_CODE% range from one to the maximum set in the DATA. Zero means that no command is selected.

The bulk of the command routines has been held over till next month, but there are a couple of examples to give you a feel for the way they work. Each action is performed by a subroutine chosen with the pidgin-BASIC ON..GO command, which is crude but much faster than SElect or IF tests.

Line 8000 marks the start of the 'Type' command, which gives a full-screen paged display thanks to DIY Toolkit's MORE extension. SAVE_SCREEN and RESTORE_SCREEN buffer the old display in 32K of memory, so that it can instantly re-appear when MORE has finished.

The SCREEN_RAM function detects if Minerva's second screen is in use and makes sure that the currently-displayed screen gets saved and restored. These routines are quite likely to come in handy in other programs. Toolkit 2 extensions ALCHP and RECHP are used here to allocate and release memory; there are many alternatives.

The subroutine at line 8100 performs the "Wildcard" command, which lets you select all the file names that contain a certain string of characters. For instance, _BAS would match all files with the normal SuperBasic suffix. Rather like Toolkit 2 wildcards, this can be over-inclusive, matching cases like TIDY_BASIC_TASK, but it's still easier than picking them all individually.

SHOW_INFO is another general-purpose routine. It extracts the details from a file's directory header, showing its size and detecting sub-directories, linker files, tasks and their dataspace. The fifth byte of the header is normally zero, but may be set by Toolkit 3's file-protection feature.

The last routine is AWAIT_KEY, which just prints a message in window #0 and waits for a key-press.

```

8200   FOR i=1 TO free%-1
8210     flag%(i)=flag%(i) && type_mask%
8220   END FOR i
8230 END IF
8240 REDRAW
8250 CURSEN #0 : RETURN
8260 :
8270 DEFine PROCedure SAVE_SCREEN
8280   screen_snap=ALCHP(32768)
8290   IF screen_snap>0
8300     MOVE_MEMORY SCREEN_RAM TO screen_snap,32768
8310     CLS : BORDER 2,5 : PAPER #0,0 : CLS #0
8320   END IF
8330 END DEFine SAVE_SCREEN
8340 :
8350 DEFine PROCedure RESTORE_SCREEN
8360   IF screen_snap>0
8370     MOVE_MEMORY screen_snap TO SCREEN_RAM,32768
8380     RECHP screen_snap
8390     screen_snap=0 :REMark Be careful!
8400   ELSE
8410     REMark   Redraw some other way
8420   END IF
8430 END DEFine RESTORE_SCREEN
8440 :
8450 DEFine FuNction SCREEN_RAM
8460   REMark Second screen is controlled by bit 7 of SV.MCSTA1
8470   RETURN 131072 + 32768 * (PEEK(SYS_BASE+52)>127)
8480 END DEFine SCREEN_RAM
8490 :
8500 DEFine PROCedure SHOW_INFO(name$)
8510   LOCAL buffa,type,ch%
8520   buffa=ALCHP(64)
8530   IF buffa>0
8540     ch%=NEWCHAN%
8550     OPEN_IN #ch%,name$
8560     GetHEAD #ch%,buffa
8570     CLS #0
8580     PRINT #0\\file$!"is " & PEEK_L(buffa)!"bytes,"!
8590     PRINT #0!"as of"!DATE$(PEEK_L(buffa+52)) & " ;"!
8600     IF PEEK(buffa+4) : PRINT #0!"protected"!
8610     type=PEEK(buffa+5)
8620     SElect ON type
8630       =0 : PRINT #0!"data file."
8640       =1 : PRINT #0!"task, dataspace"!PEEK_L(buffa+6)&"."
8650       =2 : PRINT #0!"object link file."
8660       =3,255 : PRINT #0!"sub-directory."
8670       =REMAINDER : PRINT #0!"unusual type " & type & "!"
8680   END SElect
8690   CLOSE #ch%
8700   RECHP buffa
8710   AWAIT_KEY
8720 END IF
8730 END DEFine SHOW_INFO
8740 :
8750 DEFine PROCedure AWAIT_KEY
8760   PRINT #0\\ "Please press a key to continue ..."
8770   k$=INKEY$(#0,-1)
8780 END DEFine AWAIT_KEY

```

Further Work

The Browser already works under mouse control if cursor-key emulation is enabled, but it would be nicer if it could read the mouse directly. Then you could drag-select names without using the Shift key as the mouse moves, and jump around the file list by grabbing or clicking on the scroll bar.

Such extensions are possible if we use the DIY Toolkit Mouse PTR functions, as we shall see in next month's exciting installment of SuperBasic in Action. In the meantime, please let us know if there are other commands you would like to see added to the Browser's menu.

The WORLD at your fingertips

Hilary Snaden has converted a PC map-generator for the QL

Compared to other machines the QL has been relatively poorly endowed with public domain software, and it was in search of transportable Basic programs that I looked at the large catalogues of MS-DOS PD. What caught my eye instead was a collection of data called **The World Digitised**, described as "the co-ordinates for 100,000 points on the Earth's surface including the latitude and longitude of the geographical borders and coastlines."

This looked like an excellent way of producing good quality maps on-screen without poring over atlases, trying to work out the co-ordinates, and then typing them in. This article is intended to explain some of the detective work behind making this particular set of data accessible to the QL, and to give some ideas on how to use it.

MS-DOS disks

The first problem on receipt of the three disks was, of course, that they were in MS-DOS format. Perhaps the best-known utility for transferring files between different disk formats is **DiscOver**. However, I used **IBMDisk**, an easy-to-use public domain program by Jonathan Hudson which copied the files to Qdos disks with no trouble.

It should be mentioned that while, when transferring text files (such as documents or Basic programs) from MS-DOS disks the transfer utility

can be configured to remove the CHR\$(13) - which MS-DOS adds to the end of each line and which Qdos does not need - archived files must be transferred unchanged otherwise no unarchiving utility will make much sense of them!

Unarchiving

The three disks contained a total of nine archived files in addition to some text files of advertisements for the library which supplied the discs, all of which could be safely ignored. Of the nine archived files, two contained documentation and sample programs (for MS-DOS machines), while the remaining seven contained the data, one file for each continent.

The archiving of the essential files was the next problem to surmount. Files are commonly archived to save disk space; in this case the method was the fairly well-known ARC.

At the time of writing there are two utilities available which will un-ARC files, both in the public domain. Unfortunately one of these refused to recognise the ARCD files, but Jan Bredenbeek's **UNARC** program worked with no problems, and the seven archived files which had occupied 706K (and so conveniently fitted - just - on a standard 720K Qdos disc) had become thirty files occupying 938K.

Of these files the only ones which needed to be kept were the documentation (the

example Basic handling programs were less useful than they might have been, and some were not text files) and, of course, the data itself.

Having extracted the data files from their archives, there is another problem; the geographical co-ordinates were not numbers in a text form but in a binary form.

These binary files, all with the extender MPS contained data in IEEE short real format, a "standard" way of packing numbers into four bytes about which, unfortunately, Qdos knows nothing.

Source code in C for a program to convert these binary files into numbers as text (and therefore readable by SuperBasic) was among the documentation, and after perusal of the code and a sample text data file which had helpfully been supplied, and some experimentation, an equivalent SuperBasic program was devised.

Adaptations Needed

Listing one shows the main part of this, a function which takes a four-byte string and returns in floating-point format the number that it represents. Note that owners of non-Minerva QLs would need to adapt these programs, as lines such as FOR I%=1 TO 4 and SELEct ON I% will not work at all on non-Minerva roms.

In short real format, zero is represented uniquely by four null bytes, and the func-

tion checks for this separately.

Each co-ordinate therefore consisted of eight bytes (four for each ordinate) separated by line feeds. In addition blocks of points were separated by a CHR\$(1), and some lines contained in addition text strings in the manner of REMs, explaining which areas of the world were covered by that file or block of data.

Hence the conversion program has to input a string from the MPS file and check its length. If it is longer than nine bytes it is a line containing a text message; the first eight bytes can be converted to two co-ordinates in floating point format, and written out to the output file with a space separating the ordinates and with the original text message appended. The output files containing the data in a text format were suffixed **_MP0** as suggested by the documentation.

If the input string is nine bytes long, the ninth byte is a CHR\$(1), a character used to separate blocks of connected points; the first eight bytes are then converted and written to the output file in the normal way and then followed by a blank line (the block separator in the MP0 files). CHR\$(1) may occur at the end of a longer line containing text, and this also has to be checked for.

Extra CHR\$(10)

If, however, the string is less than eight bytes long it means that the eight bytes

Listing one: Converting IEEE short real format to floating point

```

520 DEFine FuNction real(t$)
530 LOCal t%(4),s,m,e,n,n%
540 IF t$=FILLS$(CHR$(0),4) : RETURN 0
550 FOR n%=1 TO 4 : t%(n%)=CODE(t$(n%))
560 s=1 : IF t%(4)>127 : t%(4)=t%
(4)-128 : s=-1
570 m=((t%(3)MOD 128)*65536+t%(2)*
256+t%(1))/2^23
580 e=t%(4)*2+(t%(3)DIV 128)-127 : e=2^e
590 n=m*e+e
600 n=INT(1000*n+.5)/1000
610 IF s=-1 : n=-n
620 RETURN n
630 END DEFine real
640

```

Listing two: Converting MPS files to MP0\$\$

```

100 PRINT 'MPS to MP0 file conversion'
110 INPUT 'Input file:'infile$
120 INPUT 'Output file:'outfile$
130 OPEN_IN#3,infile$
140 OPEN_NEW#4,outfile$
150 decode
160 CLOSE#3 : CLOSE#4
170 :
180 DEFine PROCEDURE decode
190 LOCal t$,x$,y$,l%,n%,l%
200 REPEAT outer
210 IF EOF(#3) : EXIT outer
220 INPUT#3,t$ : l%=LEN(t$)
230 SElect ON l%
240 =0 TO 7
250 REPEAT inner
260 INPUT#3,v$
270 l$=t$&CHR$(10)&v$
280 l%=LEN(t$)
290 IF l%>7 : EXIT inner
300 END REPEAT inner
310 END SElect
320 IF l%>9
330 z$=t$(9 TO l%) : t$=t$(1 TO 8)
340 END IF
350 x$=t$(1 TO 4) : x$=real(x$)
360 y$=t$(5 TO 8) : y$=real(y$)
370 SElect ON l%
380 =8 : PRINT#4;x$!y$
390 =9 : PRINT#4;x$!y$ : PRINT#4
400 =REMAINDER
410 z%=LEN(z$)
420 IF z$(z%)=CHR$(1)
430 PRINT#4;x$!y$;z$(1 TO z%-1)
440 PRINT#4
450 ELSE
460 PRINT#4;x$!y$;z$
470 END IF
480 END SElect
490 END REPEAT outer
500 END DEFine decode
510 :

```

which should be there have become split over more than one line because one of the binary data bytes happens to be a line feed. In this case the CHR\$(10) needs to be appended at the end of the string and the remaining bytes which are part of that co-ordinate's data read in using a REPEAT loop until the string is eight or more bytes in length.

It sounds complicated; **listing two** shows how it was done. The conversion process was horribly slow, as SuperBasic was being used for a vast amount of data to be converted, but at least it had to be done only once for each of the data files.

One should beware of using Supercharge or Turbo to compile programs like this as their enhanced numerical accuracy can in fact introduce rounding errors which occupy disk space with redundant digits, and you will need a further function such as Toolkit II's FDEC\$ to restore the three decimal place accuracy of the original data.

The end result of all this is that we have thirty Qdos-readable data files, now occupying 1537K. We can now start making use of the information they contain.

Organising Disks

The most difficult data problem was a logistical one, caused by the sheer size of the data files. If you have a hard disk, or ED drives and disks, all the files will fit on a single ED disk, but lesser mortals will need to give some thought to choosing files and organising them to avoid having constantly to swap between data disks.

For example, if you are interested in the outlines of continents and islands, you could gather together the files numbered 0 and 1 (files numbered 2 and 3 cover lakes and national borders); to cover a smaller area but including national boundaries and lakes, all the files for that area could be put together, for example e0 to e3 for Europe, af0 to af3 for Africa, and so on.

The data files now all looked something like **Example one**. After all the work just described we are at last on easier ground as the

data is in a recognisable and accessible format. Drawing detailed maps on the QL screen is simply a matter of setting up a screen window with appropriate size, scale and origin, opening a channel to the required data file, reading in the data and plotting it using POINT.

In reading the co-ordinate data the inputted strings need to be sliced to extract each ordinate, with the blank lines that separate blocks of connected points being ignored.

Map Drawing

Listing three draws a map of Europe in this way. The dimensions and scale of the screen window are somewhat arbitrary, the result of a fair amount of experimentation to produce a reasonably authentic-looking map. Due to the time taken for the plotting programs to complete their work (the world map took about 45 minutes to draw with a JS rom) the completed screens were saved with SBYTES filename,131072,23808. Other programs can then use the maps without having to wait so long by loading them back into screen memory with LBYTES filename,131072 and using the same screen dimensions as were used in drawing them.

It is important not to use too much of the data as plotting too many points on a small-scale map will obscure rather than show detail.

The map of the world was drawn using every seventh point, except for the coastline of Antarctica, for which every other point was plotted. Even at larger scales, as in the map of Europe, the points are only just beginning to become obtrusive.

Only when dealing with relatively insignificant areas of the world such as Britain will it be necessary to join the points using LINE. The map of the UK was plotted in this way, and here two nested loops were needed in reading the data to avoid drawing lines between points which should not be connected. **Listing four** is this part of the program which produced the map of the UK.

The original documentation describes how to produce

Listing three: Simple plotting program

```

100 REMark draw a map of Europe
110 :
120 REMark required data files and resolution
130 REMark 0 plots every point, 1 every other,
140 :
150 DATA 'flpl_e0',0,'flpl_e1',0
160 :
170 REMark use 180,-170,-90 for the world
180 sc=25 : xorg=-15 : yorg=40
190 RESTORE
200 OPEN#3,scr_512x186a0x0
210 SCALE#3,sc,xorg,yorg
220 BORDER#3,1,2 : CLS#3
230 REPEAT loop
240 IF EOF : EXIT loop
250 READ f$,i
260 f$=f$&'_mp0'
270 plotfile f$,i
280 END REPEAT loop
290 STOP
300 :
310 DEFINE PROCEDURE plotfile(file$,n)
320 LOCAL tom,i,p
330 OPEN_IN#4,file$
340 REPEAT tom
350 IF EOF(#4) : EXIT tom
360 INPUT#4,t$
370 IF t$="" : NEXT tom
380 s=' ' INSTR t$
390 y=t$(1 TO s) : x=t$(s TO)
400 IF x>190 : x=x-360
410 IF x<-170 : x=x+360
420 POINT#3,x,y
430 IF n
440 FOR i%=1 TO n
450 IF EOF(#4) : EXIT tom
460 INPUT#4,t$
470 IF t$="" : NEXT tom
480 END FOR i
490 END IF
500 END REPEAT tom
510 CLOSE#4
520 END DEFINE plotfile
530 :

```

Listing four: Joining points safely

```

160 REPEAT tom
170 IF EOF(#4) : EXIT tom
180 INPUT#4,t$
190 s=' ' INSTR t$
200 y=t$(1 TO s) : x=t$(s TO)
210 REMark Mercator transform
220 y=48*LN(TAN(PI/4+RAD(y/2)))
230 POINT#3,x,y
240 REPEAT dick
250 IF EOF(#4) : EXIT tom
260 INPUT#4,t$
270 REMark end of block so start a new line
280 IF t$="" : EXIT dick
290 s=' ' INSTR t$
300 y1=t$(1 TO s) : x1=t$(s TO)
310 y1=48*LN(TAN(PI/4+RAD(y1/2)))
320 LINE#3,x,y TO x1,y1
330 x=x1 : y=y1
340 END REPEAT dick
350 END REPEAT tom
360 STOP
370 :

```

Example one: Part of an MP0 file

```

80.438 97.373 The World Digitized
80.424 97.352 Islands of Europe
80.407 97.336 Copyright 1986 John B. Allison
80.390 97.314
80.370 97.260
80.353 97.195
80.305 97.098
80.202 96.748
80.158 96.559
80.138 96.430

```



Mercator projections; that was not done with the maps of the world and Europe as the rather messy trigonometry required would have further slowed the map drawing, and needed the same transformation to be written into a program which I intended to use the screens. The map of the UK shows how using a Mercator projection produces a shape more like the one we are used to seeing.

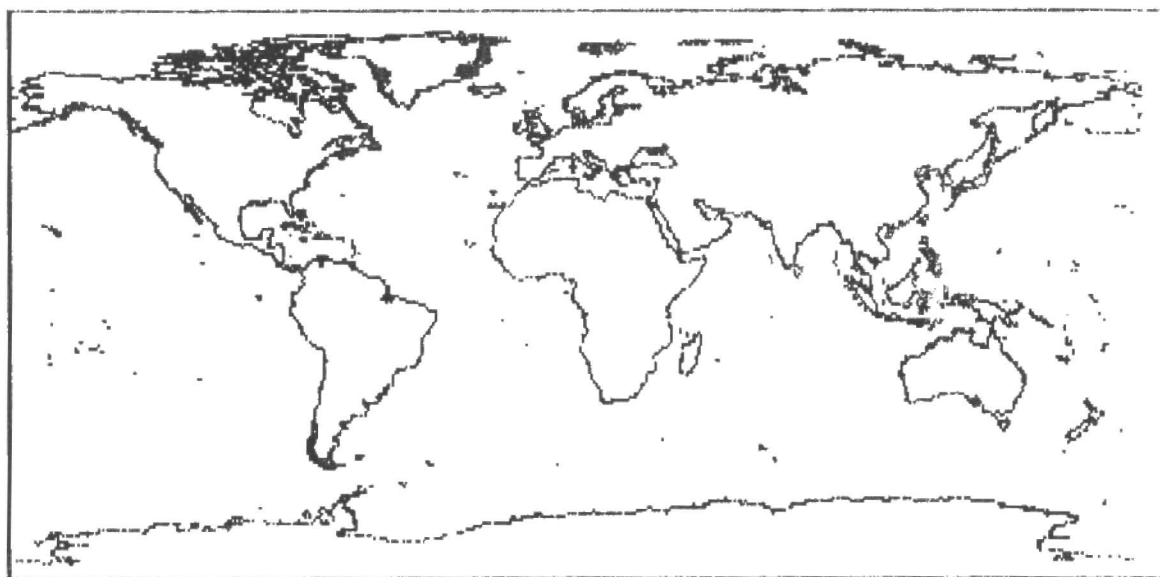
The documentation on the disks gives some practical ideas on using the data, and there are doubtless a good many more which SuperBasic hackers can devise for themselves.

Files For QL?

If there is sufficient interest it may be possible to make the converted data files described here, together with the original documentation, available through a QL public domain library. Otherwise, **The World Digitised** is available as volume number 1094 from **The Public Domain Software Library, Winscombe House, Beacon Road, Crowborough, Sussex, TN6 1UL**. The cost was £13.95 for three 5.25-in discs, £15.45 for 3.5-in, but check prices before ordering.



From top: Middle Europe; British Isles; The World.



DISKCOPY

Neil Gordon addresses the question of backups.

ONE of the most important things with computer media, whether micro-drives or disks, is to keep backups of everything. This is essential since data can become corrupted due to media failure, or destroyed by an accident such as formatting the wrong disk! Making backups is easier said than done, especially if you only have one disk drive and the disk capacity is greater than the computer's memory. To deal with this problem I wrote this program.

Check the System

Please note that the following is based on my system, which is a QL with 512K Expanderam memory expansion, and a Cumana disk interface with one 3.5 inch, double density, double sided disk drive attached, however it should be applicable for most disk users since most disk interface toolkits supply the same basic commands. The commands used are the "GET" and "PUT" commands (lines 430 and 610), which can copy sectors from a disk, and copy sectors onto a disk. The expression following each of these supplies the required location on the disk, and these may need altering for other systems - check your manual for details.

The program works by ignoring the file structure on the disk, and simply copying the sectors themselves. The sectors are what contain the data on the disk, a particular file consisting of several sectors.

On the most popular disk systems for the QL, each sector contains 512 Kbytes - one kilobyte containing 1024 bytes - so a disk containing 1440 sectors has a capacity of 720K. To copy the data on a disk, an array (called block\$ in the program) is set up. Now clearly, even with the 640K of an expanded QL, there is not sufficient memory to store the whole disk in memory, so the program copies the disk in blocks. To reduce the amount of disk swapping, I have set up the program to copy it in blocks of 360K, but if you have different memory available, the constant ramperswap (line 140) can be set accordingly. Clearly, with the 360K blocks it will require two disk swaps for a 720K disk to be read, different memory or disk capacities will affect the number of disk swaps required, so, for example, copying a 360K disk with

```
100 REMark Neil Gordon. 1991 - Program to copy discs by sectors.
110 REMark Set System specific variables
120 source$='flpl_'D2D'
130 destination$='flpl_'D2D'
140 ramperswap=360:REMark ram in K used a disc swap,<max ram.
150 sectorlen=512:REMark bytes/sector
160 blocklen=INT(ramperswap*1024/sectorlen)
170 nosides=2:REMark number of sides/disc
180 sectorsatrack=9
190 tracksaside=80
200 totalsectors=nosides*tracksaside*sectorsatrack
210 DIM block$(blocklen,sectorlen)
220 presentsector=0:putsector=0
230 WINDOW 400,200,15,15:CLS
240 PRINT 'Disc Copier'\Present settings:'
250 PRINT totalsectors*sectorlen/1024;'K disc.'
260 PRINT tracksaside;' tracks, 'sectorsatrack;
270 PRINT ' sectors per track, on a 'nosides;' sided disc.'
280 PRINT 'Copied using 'ramperswap;' Kbytes a disc swap'
290 AT 7,1:PRINT 'Side:'\Track:'\Sector:'
300 REPEAT loop
310 AT 12,0:PRINT 'Insert disc to be COPIED & press a key'
320 BEEP 10000,10:PAUSE:AT 11,0:CLS 2:PRINT '\Loading Data'
330 OPEN_IN #4,source$:startsector=presentsector
340 FOR b=1 TO blocklen
350   presentsector=presentsector+1:REMark record disc position
360   side=(presentsector-1) DIV (tracksaside*sectorsatrack)
370   AT 7,6:PRINT side
380   track=((presentsector-1) DIV sectorsatrack) MOD tracksaside
390   AT 8,7:PRINT track;" "
400   sector=(presentsector MOD sectorsatrack)
410   IF sector=0 THEN sector=sectorsatrack
420   AT 9,8:PRINT sector
430   REMark system specific function to read sector from disc
440   GET #4\sector+side*256+track*65536,i$
450   block$(presentsector MOD blocklen)=i$
460   IF presentsector=totalsectors THEN EXIT b
470 END FOR b
480 CLOSE #4:AT 12,0:PRINT 'Insert "BLANK" disc and '
490 PRINT 'Press a key':BEEP 10000,4:PAUSE:AT 11,0:CLS 2
500 PRINT '\Saving Data':OPEN_NEW #4,destination$
510 FOR putsector=startsector+1 TO presentsector
520   side=(putsector-1) DIV (tracksaside*sectorsatrack)
530   AT 7,6:PRINT side
540   track=((putsector-1) DIV sectorsatrack) MOD tracksaside
550   AT 8,7:PRINT track;" "
560   sector=(putsector MOD sectorsatrack)
570   IF sector=0 THEN sector=sectorsatrack
580   AT 9,8:PRINT sector
590   i$=block$(putsector MOD blocklen)
600   REMark system specific function to put sector on disc
610   PUT #4\sector+side*256+track*65536,i$
620 END FOR putsector
630 CLOSE #4
640 IF presentsector=totalsectors THEN EXIT loop
650 END REPEAT loop
660 AT 11,0:CLS 2:PRINT 'Disc copied successfully.':BEEP 10000,0
```

78K per swap will require 360/78=4.6, that is, 5 swaps.

Swapping Disks

The "GET" command is used to copy the necessary sectors into the array. Once the first block has been loaded, the disk being copied is removed, and the blank disk can be inserted into the drive. The data in the array is then copied to that disk using the "PUT" command.

Once this first block has been copied, the source disk is again placed in the drive. The above process is then repeated until the remaining disk data is copied. The end result is an exact copy of the original disk.

These commands require a pointer to locate the disk read/write head, so the program variable presentsector keeps a record of the position on the disk, this value being

converted to the required track, sector, side information by utilising the DIV and MOD functions.

Directly copying sectors simplifies copying, since there is no need to ensure that file sizes are less than the available memory, and that all files have indeed been copied. The downside of this technique is that some time will be spent copying 'empty' disk sectors, but at least the program will take the same amount of time for every disk copied.

The program contains constants for the data layout on the disk and the number of sides. It should not be too taxing to customise it to your system. Remember - it is better to have more copies of your work than you need than to discover you have lost your only copy!

Please note that copyright must be observed, so check program documentation before copying!

Cueshell

**The desktop program
for all QDOS
compatible systems**

Cueshell is a graphically oriented desktop program, that is the program options are presented on the screen and the user has only to point at the option, normally with the mouse, to initiate the desired operation. In practise this for instance means that to copy a file, the file is marked and then the target is simply pointed to. The destination (or a part of it) must simply be visible. Cueshell is based on the Pointer Environment, a system extension which implements mouse pointer, menu structures and Hotkeys. The Pointer Environment comes with Cueshell. Cueshell is intended to offer easy access to all everyday tasks on the computer. Cueshell is very fast, as it is completely written in Assembly, and runs on every extended QL.

**Cueshell is the first choice desktop program for all systems
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**Being a graphically controlled program, Cueshell offers
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- Additional file attribute control, write protect and invisible •
- User friendly configuration from within the program •
- Very comfortable view window with option to make .doc files easily readable and scrolling files forward and backward •

Cueshell costs DM 100.00 (\$ 40.00) and is available from Dilwyn Jones Computing, Jochen Merz Software or directly from us (eurocheques only).

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Hugh In Newport

The first Newport/Miracle Show sponsored by ILQR is now part of QL history. The second Miracle in Newport will join QL history on 14th May this year. This was how it went in 1993.

On Friday June 4th at the Carlton Motel in Newport we were busy getting to know each other and general gabbing. Many visitors from all over the States were staying there, some at motels nearby.

The UK bunch, Stuart Honeyball, Tony Firshman and Bill Richardson were busy just talking, and there was a fair amount of swapping wares and information.

Many Meetings

I was able to meet many members of our club, the Toronto Timex-Sinclair Users Club, show them a program I had just completed called Quandrex, which is an index-cross reference thing for the Quanta magazine.

On Saturday I had a table for our club at the Salvation Army Building where the Show was held, meeting many of our members and many who were not. Now I can say that many more know who, what and where we are!

I had my trusty QL with me, and all the stuff that goes with it, with a few demo programs. But shortly into the demo, my QL decided it was a bit shy in that horde, and that it did not like the 1 key. So I replaced the membrane - but my QL was still not up to appearing in public, and decided to stop accepting power at the input socket. Woe is me - a load of demos to run and my trusty QL goes bashful on me. However I was able to borrow a spare unit from Bill Cable. But when I started to install my Gold Card

in Bill's machine, I bent the pins in the port. Fortunately I had a pair of long nosed dodads to straighten the pins.

My demos were mainly run using a program called Vision Mixer (DJC), with many of the Eye-Q (Digital Precision) pictures, plus some I made with PictureMaster (DJC again). Vision Mixer allows you to change screens in a nice easy automatic manner, and the screens change in many different ways, just like TV.

While I was getting sorted out, other parties were going full steam ahead with their own demos and selling. There did not appear to be a lack of the green stuff and many were in a buying mood. *(Note for non-travellers: all American currency notes are green, rather like the old UK £1 notes before the present "art printing" commenced.)*

Stuart Honeyball was there, pushing the QXL card, and doing good business by the number of bodies clustering around his table. The QXL turns the PC into a QL-compatible (now why didn't IBM think of that?). I don't have a PC and I don't imagine I'll be getting one, so I was not too involved with his stand.

Bill Richardson was also having no problems with empty space. Plenty of goodies for all. Bill was also selling subscriptions to Quanta. Tony Firshman of TF Services was at the next table, and whenever I had to leave for a breath of air I had to push my way past his adoring mob. He is very strong on Hermes, the replacement processor for the 8049, reputed to get rid of that key bounce, and also to operate at higher baud rates, which is what is required for the modern operations, plus a whole lot of other improvements. I think I will get one. I believe Mechanical Affinity

(USA) also have them.

Tim Swenson was in attendance with his QL Hacker's Journal, and it deals with many languages in depth. To my right was

Mechanical Affinity with Paul Holmgren and Frank Davis, and every time I looked at Paul I got the impression of a bundle of \$\$\$ in his fist. Looks more like a bookie than a trader. Lucky Paul!

John Impellizzeri and his partner were showing off their tower assembly. Looks mighty impressive to me. I could not get a price out of him for the conversion, but it appears to be less than I thought.

Then of course we had Bill Cable of Wood and Wind Computing, he that loaned me his spare QL. He was demonstrating his new program QLerk, which he has been working on for a couple of years - a program suitable to run a small business or even your household finances. I have been able to have a close look at this program, and while admitting there will be a period of getting to know QLerk, it is a very comprehensive book-keeping system.

Bob Dyl was pushing IQLR which was the sponsor of the whole show. Thanks, Bob.

Donuts!

NESQLUG used the serving hatch in the kitchen and provided us with donuts and soft drinks, help yourself and all free! A very grateful thanks. That was also a very popular section of the show!

Who else was there? A whole bunch of dedicated QL users from a young man not yet in his teens to old fogies like myself. I have probably missed someone out, and if so, please accept my apologies and the wet noodle treatment would be appropriate. *(We hardly like to ask ...)*

After the show many of us had an excellent Dutch Treat Dinner at the Newport Beach Hotel and told tales at the tables. On Sunday, there

were little meetings in the rooms of the Carlton Motel, coming and going and chatter about programs and the future and all that jazz.

Tony Firshman was running a BBS on two QLs connected by their serial ports. I could not get near, there were so many crowded into a small bedroom, but from what I could see it was a most interesting couple of hours.

I came home on Monday, but many stayed on to have a look round Cape Cod (and dodge Stuart and Tony on their bicycles.) I gather the UK people are keen to come back in 1994, and I have been told that the Germans and others would be interested in coming if these is a convention further inland.

In discussion with another trader, I asked what they thought and they said Toronto would be an ideal place. I would like to see a Sinclair convention covering ALL the Sinclair computers. This is my own thinking, and I am tossing it out for comment. The ideal place would be the Hamilton/Toronto corridor, which is easier to move around in than Toronto itself, and accommodation is cheaper. There is Queen Elizabeth Way for fast commuting right into the heart of downtown Toronto for shopping and entertainment, and a bus and train service. It's easy access from the East, and from the South it is only a few miles from highway 401.

This has been a dream with no realisation so far, but if you would come to a show in Toronto, I'm adding my address at the end of this, so write and give me your comments. And when you write, tell me what traders you would like to see there. Not all would be able to come, but we could ask them.

Was the Newport Miracle a success? I would say so. The traders were happy, and general consensus was that everyone was happy to have met so many old friends and made so many new ones. Isn't that what a convention is all about?

Write to: Hugh H Howle, 586 Oneida Drive, Burlington, Ontario, Canada L7T 3V3.

QLScene

NEW DJC CATALOGUE

Dilwyn Jones' February 1994 catalogue is now out, with several new items. DJC has agreed with **Ergon Development** of Italy to sell their software (not hardware), including Open World, Music Manager, Spectrum emulators, DEA, MasterBasic and Library Manager, etc. DJC will deal in all Ergon software apart from upgrades for existing users, which **must** be ordered direct from Italy. An information sheet with all UK and Italian currency prices is also available from DJC the same as all their other leaflets - free with orders on request or with catalogues, otherwise please send an **SAE or International Reply Coupon**.

DJC's catalogue has general information as well as prices and descriptions of his wares, so is interesting reading. Dilwyn has also acquired Simon Goodwin's stock of **Speedscreen** screen accelerator, on disk (3.5in and 5.25in), microdrive and eprom. Speedscreen optimises QL display handling by replacing the QL rom code with faster routines to display text and update windows typically x5 to x10 times faster than Sinclair, Minerva or Qdos emulator code.

Speedscreen has now been tested on 68020, 030 and 040 processors as well as 68008 and 68000. Amiga emulator users can patch the code with the TAS Replacer for full compatibility. Amiga users upgrading Amiga Qdos 3.20 or earlier from a 68000 may need to repatch their Speedscreen_Code file.

A demo version is in circulation in PD and club libraries. Speedscreen costs £15 on most media, with manual, or £30 on eprom with extra documentation and disk or cartridge of add-on software. The rom is particularly recommended for unexpanded QLs. Please state set-up when ordering. **Dilwyn Jones Computing**. Tel. 0248 354023.

Hessler On Cue

Cueshell, a new "desktop program for all QDOS compatible systems" is out now from Albin Hessler.

Also described as a "graphically oriented desktop program", where options are displayed on the screen and selected with a mouse-pointer. Cueshell is based

on the **Pointer Environment**, which comes as part of the package. It is intended to give easy access to everyday tasks on the QL, and at first glance at the very extensive, comprehensive, illustrated and on the whole easy-to-read instruction booklet, seems designed to do just that.

Some features are as yet little known to the QDOS environment: **Object oriented** file management (such as copying complete directory trees); "catalogue windows" which can be sized, positioned, saved and restored for any directory; up to 16 can be open at once; it is configurable from within.

Dilwyn Jones will be Cueshell's distributor in the UK and Jochen Merz in Europe. They can provide more information about it for Pointer Environment and new users - Albin's leaflet assumes quite a lot of familiarity with more advanced QL systems.

Cueshell is available on 3.5in disk for DM99 or £40. QL World will be looking for a reviewer shortly.

Albin Hessler is at **Im Zeilfeld 25, D-72631 Aichtal, Germany**. Tel and fax (from UK) 010 49 7127 56280.

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Quo Vadis 0708 755759
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SOFTWARE

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QTop, Atari QL emulator, Thor support

Deltasoft 7 Tyrell Way, Stoke Gifford, Bristol. FlightDeck, Image D, AMD Airplan

Digital Precision 081 527 5493
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Ergon Developments (Davide Santachiara) 010 39 342 492323 (Italy)

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Jochen Merz Software 010 49 203501274 (Germany)

QL/Atari emulators, QSpread, File Finder, QPTR Pointer Environment Toolkit and other PE programs, QDesign 2, various games, and others.

Lear Data Systems 6
Southview Green, Bentley,

Ipswich, Suffolk IP9 2DR.
PCB-CAD

Liberation Software 081 546 7795
QLib Basic compiler and utilities. (Dist. by Dilwyn Jones.)

Ocean Computer Services 061 740 9002
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Pointer Products 0258 455117
Pointer Environment programs

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LineDesign, The Painter, The Clipart, DataDesign and others (Dist. by Dilwyn Jones; LineDesign dist. by Software87)

Qubbesoft PD 0376 347852
QL Home Finance, Public Domain software.

SJPD Software 0282 51854
Public Domain software

Software 87 33 Savernake Road, London NW3 2JU.

Text87 Plus4, Publishers' Pack.

Some people have fax numbers on the same number as the phone. Check first.

Beginners' Machine Code

In part 9, Alan Bridewell moves out of SuperBasic into EXEC jobs.

So far in this series we have been writing machine code routines which can be CALLED from SuperBasic. This is not the only way to use machine code, and is probably not the best. There are at least two alternatives.

One alternative is to write a program which can be EXECed from SuperBasic. This means that the program runs as a separate job under SuperBasic. As such, it can multi-task with other programs, or several separate copies of the same program can be running at the same time. Until compilers of SuperBasic (and other languages) came onto the market, this was the only way to write multi-tasking programs.

What's a Job?

Before going on, we need a few words concerning jobs, for those of you who are not familiar with the concept.

When the QL is switched on, there is only one job running, and that is the SuperBasic interpreter. All the available micro-processor time is used for that job. So the QL will be ready to interpret, and execute, lines of valid SuperBasic code, which can come from the keyboard, or a RUNNING SuperBasic program. Since all the available processor time is used for this, the QL cannot do anything else at the same time.

However, when a pro-

gram is EXECed, it is allocated its own share of the processor time. What happens is the processor keeps swapping over between running the SuperBasic interpreter and the EXECed program. This happens over very short time intervals, to give the impression that both are working continuously at the same time. Any number of jobs can be multi-tasked in this way. Of course, the more jobs that are running at the same time, the smaller the pro-

portion of the total time each will get, so they will run slower.

Some programs do complicated things which require a lot of processor time, so any slowing down would be a disadvantage. Others, though, do very quick things, and spend most of their time waiting for input, telling them what to do next. When such programs are allocated less time it has no noticeable effect. By

default, all jobs running are allocated the same proportion of processor time, but this can be change. More about this another time.

A job can own input/output channels. This is why whenever we open a channel with a TRAP #2 call we have to give a job ID (usually -1 to mean "this job"). It can also own other jobs. Ownership does not mean exclusive use. Any job

LISTING 1

```
*****
;                                     'EXEC JOB'
*****
; THIS IS HOW AN EXEC JOB SHOULD BE STARTED.
;
;                                     BRAS    START    ; BRANCH TO START OF CODE
;                                     DC.L     0         ; (THIS IS STANDARD FORMAT FOR
;                                     DC.W     $4AFB      ; START OF A JOB)
;                                     DC.W     7         ; CHARACTER COUNT OF JOB NAME
;                                     DC.B     'MESSAGE'  ; NAME OF JOB
;
; OPEN THE CONSOLE CHANNEL
;
; START                                LEA.L    PBLOCK,A1    ; PBLOCK ADDRESS IN A1
;                                MOVEA.W   #C6,A2    ; UT_CON VECTOR IN A2
;                                JSR      (A2)
;
; PRINT MESSAGE
;                                LEA.L    MESSAGE,A1 ; BASE ADDRESS IN A1
;                                MOVEA.W   #D0,A2    ; UT_MTEXT VECTOR IN A2
;                                JSR      (A2)
;
; KILL THE JOB
;
;                                MOVED    #5,D0      ; #MT_FRJOB IN D0
;                                MOVED    #-1,D1     ; ID OF THIS JOB IN D1
;                                TRAP     #1
;
; CONSOLE CHANNEL DEFINITION BLOCK.
;
; PBLOCK                                DC.B     4         ; GREEN BORDER
;                                DC.B     2         ; 2 PIXELS WIDE
;                                DC.B     0         ; BLACK PAPER/STRIP
;                                DC.B     7         ; WHITE INK
;                                DC.W     150        ; WIDTH
;                                DC.W     20         ; HEIGHT
;                                DC.W     0         ; X POSITION
;                                DC.W     0         ; Y POSITION
;
; MESSAGE.
;
; MESSAGE                                DC.W     18         ; LENGTH OF MESSAGE
;                                DC.B     'THIS IS A MESSAGE:'
;
*****
```

can use any channel and data can be moved between jobs. All ownership means is when the particular job ends all its channels are closed automatically, and any other jobs it owns are also ended and their channels are also closed.

There are some other points that will need to be dealt with for more complicated jobs, but this will do for a start.

EXEC Command

When a job is started with the EXEC command, the code must begin in a strict format. It starts with a JMP instruction, which should point to the code which the program runs. Although this is usually a JMP.S instruction, it could point to an address some distance away, in which case it might be a JMP.L instruction, taking 6 bytes. If a short form of the JMP instruction is used, the unused bytes must be filled with zeroes. The next two bytes contain the word \$4AFB, which is a flag to tell Qdos that this is a job. This is then followed by the job name, in the form of a word giving the name length, followed by the bytes of the name itself.

Finishing a job is a little different from a CALLED routine. When a routine is CALLED from SuperBasic, we end with a RTS instruction to return to SuperBasic. This will not do for a job, because it is not running as a subroutine of another program, but as a separate job. It has nowhere to return to. What we have to do is to kill the job, so that any channels it has opened are closed, and it no longer has processor time allocated to it.

Check Your Traps

There is a TRAP #1 call which does this called MT_FRJOB. It requires the number 5 in register D0, which tells the trap call to

```

LISTING 2

100 REMark Sinclair QL World HEX LOADER v 3
110 REMark by Marcus Jeffery & Simon N Goodwin
120 :
130 CLS: RESTORE :READ space:start=RESPR(space)
140 PRINT "Loading Hex...":HEX_LOAD start
150 INPUT "Save to file...";f$
160 SEXEC f$,start,byte,1024:STOP
170 :
180 DEFine Function DECIMAL(x)
190 RETURN CODE(h$(x))-48-7*(h$(x)>"9")
200 END DEFine DECIMAL
210 :
220 DEFine PROCedure HEX_LOAD(start)
230 byte=0:checksum=0
240 REPEAT load_hex_digits
250   READ h$
260   IF h$="*":EXIT load_hex_digits
270   IF LEN(h$) MOD 2
280     PRINT "Odd number of hex digits in: ";h$
290     STOP
300   END IF
310   FOR b=1 TO LEN(h$) STEP 2
320     hb=DECIMAL(b):lb=DECIMAL(b+1)
330     IF hb<0 OR hb>15 OR lb<0 OR lb>15
340       PRINT "Illegal hex digit in: ";h$:STOP
350     END IF
360     POKE start+byte,16*hb+lb
370     checksum=checksum+16*hb+lb
380     byte=byte+1
390   END FOR b
400 END REPEAT load_hex_digits
410 READ check
420 IF check<>checksum
430   PRINT "Checksum incorrect. Recheck data. ":STOP
440 END IF
450 PRINT "Checksum correct. Data entered at: ";start
460 END DEFine HEX_LOAD
470 :
480 REMark Space requirements for the machine code
490 DATA 76
500 :
510 DATA "6010": REMark          BRA.S      START
520 DATA "00000000": REMark      DC.L       #$0
530 DATA "4AFB": REMark          DC.W       #$4AFB
540 DATA "0007": REMark          DC.W       7
550 DATA "4D45535341474500": REMark DC.B      'MESSAGE'
560 DATA "43FA0018": REMark      LEA.L      PBLOCK,A1
570 DATA "347B00C6": REMark      MOVEA.W    $C6,A2
580 DATA "4E92": REMark          JSR        (A2)
590 DATA "43FA001A": REMark      LEA.L      MESSAGE,A1
600 DATA "347B00D0": REMark      MOVEA.W    $D0,A2
610 DATA "4E92": REMark          JSR        (A2)
620 DATA "7005": REMark          MOVEQ     #5,D0
630 DATA "72FF": REMark          MOVEQ     #-1,D1
640 DATA "4E41": REMark          TRAP       #1
650 DATA "04": REMark            DC.B       4
660 DATA "02": REMark            DC.B       2
670 DATA "00": REMark            DC.B       0
680 DATA "07": REMark            DC.B       7
690 DATA "0096": REMark          DC.W       $96
700 DATA "0014": REMark          DC.W       $14
710 DATA "0000": REMark          DC.W       0
720 DATA "0000": REMark          DC.W       0
730 DATA "0012": REMark          DC.W       $12
740 DATA "544849532049532041204D4553534147453A"
750 REMark                        'THIS IS A MESSAGE'
760 DATA "*",4877

```

"force remove a job from the transient program area". (Your assembler may accept the label MT_FRJOB as the number 5.) Register D1 should contain the job ID of the job being removed: "-1" here means "remove this

job". If you are ending the job because an error has occurred, you may wish for the error message to be displayed, in which case the appropriate error code should go into register D3.

If we do not end with

this trap call, there are various things that could happen, none of them good. The program could go on to look for more instructions beyond the last instruction, which will cause the job to crash, and quite possibly

will cause the whole QL to crash. The program could go into a closed loop of instructions, forever doing nothing over and over again, and using processor time for nothing. It could reach a point where it was waiting for input which never comes, again using processor time doing nothing. Clearly, if we have finished with the job, it is best to kill it properly.

What we have here is the essential minimum for a successful job, a proper start, and a proper end. What comes in between can be whatever we want the job to do.

To illustrate the point **Listing One** is a minimal job. (Clearly we could have a job which did nothing at all, but then it would be a bit difficult to show it had worked. This job will at least produce something on the screen to show us it has been done.)

We begin with the standard format for the

start of a job. Note the line:

DC.L 0

which puts in four zeroes to fill up the space because BRAS only uses two of the six bytes (which would have been needed if we started with a BRAL instruction).

Next comes the program proper. It opens a console channel, and then prints some text in it. This has all been covered in previous parts of this series.

Only two points need making. First, there is no need to put the channel ID into register D1 for the UT_MTEXT subroutine, because it will already be there, left by the UT_CON trap call immediately before. Second, there is no need to deliberately close the console channel because it will be close by the MT_FRJOB trap call at the end.

The listing ends with the parameter block for the console and the message to be displayed.

SEXEC!

When you assemble the listing, it is important to remember that the code has to be saved using the SEXEC command and not the SBYTES command, because SuperBasic has to recognize it as a file suitable for the EXEC command.

Listing Two contains the code in Marcus and Simon's Hex Loader for those who do not have an assembler, with the slight difference that line 160 has been altered to give the SEXEC command rather than SBYTES.

Once you have got the program to EXEC properly, you can try experimenting with it using any of the ideas covered so far in this series. None of them should give any particular problems as long as you avoid using the stack. (Each job must have its own stack, but that another story.) The only other thing to realise is this. If your job is going to get input from the keyboard,

you will have to use Ctrl-C to get between the job's flashing cursor to SuperBasic's channel #0 flashing cursor.

The program in Listing One is so short and is completed so quickly that it hardly rates as a program for multi-tasking. But by writing longer routines, with multiple loops so that they take an appreciable time to complete, it is possible to EXEC a second copy while the first is still running and see the effect. You could also EXEC Listing One while a longer job was running, so that you could see it completed without having any noticeable influence on the other job.

Essentially, there is nothing difficult about EXEC routines once a few ground rules have been understood. Simple EXEC routines are no more difficult to write than simple CALL routines.

Next time we shall look at some other aspects of EXEC job programming.

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